

**WHAT IS CLAIMED IS:**

## 1. A printing apparatus comprising:

a data receiver to receive data from a host device and output the received data;

5 a memory to store the data output by the data receiver;

a printer controller to read out the data stored in the memory in a first-in-first-out order and control the printing apparatus in accordance with the data;

10 a command detector to detect a predetermined command within the data directly input from the data receiver; and

a state controller to change a state of the printing apparatus from an off-line state to an on-line state in accordance with the predetermined command detected by the command detector.

15 2. A printing apparatus according to Claim 1, wherein the state controller changes the state of the printing apparatus substantially simultaneously with the printer controller controlling the printing apparatus.

3. A printing apparatus according to Claim 1, wherein the state controller changes the state of the printing apparatus with a higher priority than a priority of the printer controller controlling the printing apparatus.

20 4. A printing apparatus according to Claim 1,

wherein the predetermined command comprises plural data units of a predetermined size, and

wherein the command detector comprises:

a data counter for counting a number of data units, and

25 a comparator to compare a data unit received by the data receiver with a command pattern representing the predetermined command in accordance with the

data counter.

5. A printing apparatus according to Claim 1, wherein the data receiver receives data from the host device while interrupting the printer controller controlling the printing apparatus.

5 6. A printing apparatus according to Claim 1, wherein the command detector detects predetermined command from the data input from the data receiver while interrupting the printer controller controlling the printing apparatus.

7. A printing apparatus comprising:

a data receiver to receive data from a host device;

10 a memory to store the data received by the data receiver;

a printer controller to read out the data stored in the memory in a first-in-first-out order and control the printing apparatus in accordance with the data;

15 a command detector to detect a predetermined command within the data received by the data receiver upon reception thereof; and

a state controller to change a state of the printing apparatus from an off-line state to an on-line state in accordance with the predetermined command detected by the command detector.

20 8. A printing apparatus according to Claim 7, wherein the state controller changes the state of the printing apparatus while the printer controller controls the printing apparatus.

9. A printing apparatus according to Claim 7, wherein the state controller changes the state of the printing apparatus while interrupting the printer controller controlling the printing apparatus.

25 10. A printing apparatus according to Claim 7,

wherein the predetermined command comprises plural data units of a predetermined size, and

wherein the command detector comprises:

a data counter to count a number of data units, and

5 a comparator to compare a data unit received by the data receiver with a data pattern representing the predetermined command in accordance with the data counter.

11. A printing apparatus according to Claim 7, wherein the data receiver interrupts the printer controller to receive the data from the host device.

10 12. A printing apparatus according to Claim 7, wherein the command detector detects the predetermined command within the data received by the data receiver while interrupting the printer controller controlling the printing apparatus.

13. A method for controlling a printing apparatus comprising the steps of:

(a) receiving data from a host device;

15 (b) storing in a memory the data received in step (a);

(c) reading the data stored in step (b) in a first-in-first-out order and controlling the printing apparatus according to the data;

(d) detecting predetermined command within the data received in step (a) upon reception of the data in step (a); and

20 (e) changing a state of the printing apparatus from an off-line state to an on-line state in accordance with the predetermined command detected in step (d).

14. A control method according to Claim 13, wherein step (e) is executed while the control process is executed in step (c).

25 15. A control method according to Claim 13, wherein step (e) is executed while the process in step (c) is interrupted.

## 16. A control method according to Claim 13,

wherein in step (d) the predetermined command from the host device comprises plural data units of a predetermined size, and

wherein step (d) comprises the steps of:

5 counting a number of data units, and

comparing a data unit received in step (a) with a data pattern representing the predetermined command in accordance with the number of data units counted.

## 17. A printing apparatus comprising:

(a) a data receiver to receive data from a host device;

10 (b) a memory to store the data received by the data receiver;

(c) a command interpreter to interpret a predetermined command within the data received by the data receiver before storing the data in the memory;

15 (d) a state controller to change a state of the printing apparatus from an off-line state to an on-line state in accordance with the predetermined command interpreted by the command interpreter; and

(e) a printer controller to read the data stored in the memory in a first-in-first-out order and control the printing apparatus in accordance with the data.

20 18. A printing apparatus according to claim 17, wherein the command interpreter interprets the predetermined command while the control operation of the printer controller is interrupted.

19. A printing apparatus according to claim 17, wherein the command interpreter interprets the predetermined command even while the printing apparatus is in an off-line state.

25 20. A printing apparatus according to claim 17, wherein the state controller changes the state of the printing apparatus while the operation of the printer controller is

interrupted.

21. A printing apparatus according to claim 17, wherein the predetermined command is not stored in the memory.

22. A printing apparatus according to claim 17, wherein all of the data received by  
5 the data receiver is stored in the memory.

23. A method of controlling a printing apparatus comprising the steps of:

(a) receiving data from a host device;

(b) storing the data received in step (a);

(c) interpreting a predetermined command within the data received in step  
10 (a) before storing the data in step (b);

(d) changing a state of the printing apparatus from an off-line state to an  
on-line state in accordance with the predetermined command interpreted in step (c);  
and

(e) reading the data stored in step (b) to control the printing apparatus.

15 24. A control method according to Claim 23, wherein step (d) is executed while the  
control process is executed in step (e).

25. A control method according to Claim 23, wherein step (d) is executed with  
priority over the control process in step (e).

26. A control method according to Claim 23, wherein step (d) is executed while the  
20 control process of step (e) is interrupted.

27. A control method according to Claim 23, wherein at least steps (a), (c), and (d)  
continue to be executed even while the printing apparatus is in an off-line state.

28. A printing apparatus comprising:

a data receiver to receive data from a host device;

a memory to store the data received by the data receiver;

a printer controller to read out the data stored in the memory in a first-in-first-out order and control the printing apparatus in accordance with the data;

5 a command detector to detect a predetermined command within the data received by the data receiver upon reception thereof, and notify the printer controller of detection of the predetermined command; and

wherein, the printer controller changes a state of the printing apparatus from an off-line state to an on-line state in accordance with the predetermined command  
10 with a priority over the data read out from the memory when the command detector notifies the printer controller of detection of the predetermined command.

## 29. A printing apparatus comprising:

a data receiver to receive data from a host device and output the received data;

15 a memory to store the data output by the data receiver;

a first printer controller to read out the data stored in the memory in a first-in-first-out order and control the printing apparatus in accordance with the data;

20 a command detector to detect a predetermined command within the data directly input from the data receiver;

an operation detector to detect a predetermined manual operation by an operator of the printing apparatus; and

25 a second printer controller to perform a predetermined control operation in accordance with the predetermined manual operation detected by the operation detector;

wherein the second printer controller performs substantially the same control operation as the predetermined control operation in accordance with the predetermined command detected by the command detector.

30. A printing apparatus according to Claim 29, wherein the second printer controller performs the control operation substantially simultaneously with the first printer controller controlling the printing apparatus.

31. A printing apparatus according to Claim 29, wherein the second printer controller performs the control operation with a higher priority than a priority of the first printer controller controlling the printing apparatus.

32. A printing apparatus according to Claim 29,

wherein the predetermined command comprises plural data units of a predetermined size, and

10 wherein the command detector comprises:

a data counter for counting a number of data units, and

a comparator to compare a data unit received by the data receiver with a command pattern representing the predetermined command in accordance with the data counter.

15 33. A printing apparatus according to Claim 29, wherein the data receiver receives data from the host device while interrupting the first printer controller controlling the printing apparatus.

34. A printing apparatus according to Claim 29, wherein the command detector detects a predetermined command from the data input from the data receiver while interrupting the first printer controller controlling the printing apparatus.

35. A printing apparatus comprising:

a data receiver to receive data from a host device;

a memory to store the data received by the data receiver;

25 a first printer controller to read out the data stored in the memory in a first-in-first-out order and control the printing apparatus in accordance with the data;

a command detector to detect a predetermined command within the data received by the data receiver upon reception thereof;

an operation detector to detect a predetermined manual operation by an operator of the printing apparatus; and

5 a second printer controller to perform a predetermined control operation in accordance with the predetermined manual operation detected by the operation detector;

wherein the second printer controller performs substantially the same control operation as the predetermined control operation in accordance with the  
10 predetermined command detected by the command detector.

36. A printing apparatus according to Claim 35, wherein the second printer controller performs the control operation while the first printer controller controls the printing apparatus.

15 37. A printing apparatus according to Claim 35, wherein the second printer controller performs the control operation while interrupting the first printer controller controlling the printing apparatus.

38. A printing apparatus according to Claim 35,

wherein the predetermined command comprises plural data units of a predetermined size, and

20 wherein the command detector comprises:

a data counter to count a number of data units, and

a comparator to compare a data unit received by the data receiver with a data pattern representing the predetermined command in accordance with the data counter.

25 39. A printing apparatus according to Claim 35, wherein the data receiver interrupts the first printer controller to receive the data from the host device.



40. A printing apparatus according to Claim 35, wherein the command detector detects the predetermined command within the data received by the data receiver while interrupting the first printer controller controlling the printing apparatus.

41. A method for controlling a printing apparatus comprising the steps of:

- 5           (a) receiving data from a host device;
- (b) storing in a memory the data received in step (a);
- (c) reading the data stored in step (b) in a first-in-first-out order and controlling the printing apparatus according to the data;
- (d) detecting a predetermined command within the data received in step (a) upon reception of the data in step (a); and
- 10           (e) detecting a predetermined manual operation by an operator of the printing apparatus; and
- (f) performing a predetermined control operation in accordance with the predetermined manual operation detected in step (e);
- 15           (g) performing a control operation substantially the same as the predetermined control operation in accordance with the predetermined command detected in step (d).

42. A control method according to Claim 41, wherein step (g) is executed while the control process is executed in step (c).

20 43. A control method according to Claim 41, wherein step (g) is executed while the process in step (c) is interrupted.

44. A control method according to Claim 41,

          wherein in step (d) the predetermined command from the host device comprises plural data units of a predetermined size, and

25           wherein step (d) comprises the steps of:

          counting a number of data units, and

comparing a data unit received in step (a) with a data pattern representing the predetermined command in accordance with the number of data units counted.

45. A printing apparatus comprising:

- (a) a data receiver to receive data from a host device;
- 5 (b) a memory to store the data received by the data receiver;
- (c) a command interpreter to interpret a predetermined command within the data received by the data receiver before storing the data in the memory;
- (d) an operation detector to detect a predetermined manual operation by an operator of the printing apparatus;

10 (e) a first printer controller to perform a predetermined control operation in accordance with the predetermined manual operation detected by the operation detector, the first printer controller performing substantially the same control operation as the predetermined control operation in accordance with the predetermined command detected by the command detector; and

15 (f) a second printer controller to read the data stored in the memory in a first-in-first-out order and control the printing apparatus in accordance with the data.

20 46. A printing apparatus according to claim 45, wherein the command interpreter interprets the predetermined command while the control operation of the second printer controller is interrupted.

47. A printing apparatus according to claim 45, wherein the command interpreter interprets the predetermined command even while the printing apparatus is in an off-line state.

25 48. A printing apparatus according to claim 45, wherein the first printer controller performs the control operation while the operation of the second printer controller is interrupted.

49. A printing apparatus according to claim 45, wherein the predetermined command is not stored in the memory.

50. A printing apparatus according to claim 45, wherein all of the data received by the data receiver is stored in the memory.

5 51. A method of controlling a printing apparatus comprising the steps of:

(a) receiving data from a host device;

(b) storing the data received in step (a);

(c) interpreting predetermined command within the data received in step (a) before storing the data in step (b);

10 (d) detecting a predetermined manual operation by an operator of the printing apparatus;

(e) performing a predetermined control operation in accordance with the predetermined manual operation detected in step (d);

15 (f) performing a control operation substantially the same as the predetermined control operation in accordance with the predetermined command interpreted in step (c); and

(g) reading the data stored in step (b) to control the printing apparatus.

52. A control method according to Claim 51, wherein step (f) is executed while the control process is executed in step (g).

20 53. A control method according to Claim 51, wherein step (f) is executed with priority over the control process in step (g).

54. A control method according to Claim 51, wherein step (f) is executed while the control process of step (g) is interrupted.

25 55. A control method according to Claim 51, wherein at least steps (a), (c), and (f) continue to be executed even while the printing apparatus is in an off-line state.

## 56. A printing apparatus comprising:

a data receiver to receive data from a host device;

a memory to store the data received by the data receiver;

an operation detector to detect a predetermined manual operation by an  
5 operator of the printing apparatus;

a printer controller to read out the data stored in the memory in a  
first-in-first-out order and control the printing apparatus in accordance with the data,  
the printer controller performing a predetermined control operation in accordance  
with the predetermined manual operation detected by the operation detector;

10 a command detector to detect predetermined command within the data  
received by the data receiver upon reception thereof, and notify the printer controller  
of detection of the predetermined command;

wherein the printer controller performs substantially the same control  
operation as the predetermined control operation in accordance with the  
15 predetermined command detected by the command detector with a priority over the  
data read out from the memory when the command detector notifies the printer  
controller of detection of the predetermined command.